REMARKS

Claims 1 – 18 remain in the application and stand rejected. Claims 5, 7, 10, 12 and 18 have been amended herein. No new matter is added.

Claims 5, 7, 10 and 12 are objected to and claims 7 and 18 are rejected for formal reasons. Responsive thereto, claims 5, 7, 10, 12 and 18 have been amended herein.

The Examiner asserts that claims 1 – 18 are unpatentable over Hunt et al. (U.S. Patent No. 6,629,123) in view of Ibe et al. (U.S. Patent No. 6,437,804) under 35 U.S.C. §103(a). The rejection is respectfully traversed.

Rejecting claims 1 – 18, the Examiner asserts that "Hunt discloses the invention as claimed, including a task management method for determining optimal placement of task components," substantially as recited in claims 1, 8 and 13, for example. Specifically, the Examiner asserts that "generating a communication graph representative of a task" (e.g., step (a) of claim 1, line 3) is disclosed by Hunt et al. at col. 23 lines 13 – 23; that both weighting the graph edges (e.g., claim 1, line 6) and "determining a min cut for the communication graph" (e.g., step (e) of claim 1, line 12) are disclosed by Hunt et al. at col. 24 lines 8 – 28; that "placing task components on said terminal nodes responsive to said min cut solution" (e.g., step (f) claim 1, lines 13 – 14) is disclosed by Hunt et al., also at col. 23 lines 13 – 23. The Applicants note that these three steps fall short of reciting the invention as claimed. For the omitted steps the Examiner looks to Ibe et al.

So, similarly, the Examiner asserts that Ibe et al. "teaches the invention as claimed, including the following limitations not shown by Hunt, specifically:" steps b, c and d for claim 1, for example. Continuing, the Examiner asserts that "assigning terminal nodes to said communication graph" (e.g., step b of claim 1, line7) is described by Ibe et al. in that "'Shaded nodes 3, 6, and 10 are anchor nodes', wherein an anchor node is

analogous to the claimed terminal nodes in both form and function" at col. 5, line 64 – col. 6, line 3; that "identifying nodes adjacent to terminal nodes and connected to each adjacent terminal node by a terminal edge" (e.g., step (c) of claim 1, lines 8 – 9) is taught by Ibe et al. at "col. 9 line 66 – col. 10 line 15, 'Graph adjacency information may be constructed in the form of an adjacency matrix such that id node i and node j are adjacent, the entry in row i, column j is 1; otherwise, it is zero"; and, finally, that "reducing the weight of **each terminal edge** for each said identified node by the minimum weight of every terminal edge for said identified node" (e.g., step (d) of claim 1, lines 10 – 11, emphasis added) is described by clustering nodes to minimize the variation of the sum of the node weights in the clusters. In particular, for this the Examiner relies on "If a **cluster's weight** is larger than the maximum allowed weight [W>L+t], a **neighboring cluster** having the smallest weight without a weak link interconnecting them **is found.** A **node** which is adjacent to the smaller cluster **is moved** to the smaller weight cluster" in Ibe et al. at col. 24, lines 43 – 58 (emphasis added).

From this, the Examiner concludes that, it "would have been obvious to one of ordinary skill in the art to combine Hunt with Ibe since in cases where a particular task is large, the time required to generate a minimum cost cut of the graph may prove to be prohibitively high." The Examiner alleges that the motive for combining Hunt et al. with Ibe et al., is "to calculate minimum costs for smaller graphs, 'while maintaining data dependencies between the sub-graphs, such that all communication links are still intact.'" While this may certainly reflect problems found within the art, e.g., a long felt need, it is certainly not a suggestion or motivation to combine within 35 U.S.C. §103(a).

Hunt et al. teaches "An automatic distributed partitioning system (ADPS) intercepts function calls to unit activation functions that dynamically create application units, such as a component instantiation function." *See*, Hunt et al. Abstract. A "distribution optimization algorithm accepts a model of the decision problem and ... decides where application units will be placed in the network." *Id*, col. 23, lines 13 – 17. "[T]he application units and inter-unit communication form a commodity flow network.

After this mapping, known graph-cutting algorithms can be used for automatic distributed partitioning." *Id*, lines 20 – 23. Hunt et al. also teaches that "the minimum cut contains edges with the smallest weights (capacities), those edges represent the line of minimum communication between the client and server." *Id*, col. 24, lines 25 – 28.

Ibe et al. teaches modeling a network as a graph, partitioning the graph, "assigning a weight to each node in the graph, and... balancing partitions as a function of the weight of each node in a respective partition." *See*, col. 2, lines 37 – 43 (emphasis added). Ibe et al. types edges or links as normal, strong and weak (which are not included in any partition). *See*, col. 5, lines 47 – 51. Aside from the apparent differences of weighting nodes instead of edges and typing edges into 2 types, Ibe et al. is distinguished in that a "node on which a control agent is attached is defined as an 'anchor node.'" Col. 6, lines 24 – 25. Further, "an automated system has the advantage that it can have a built-in mechanism that allows the network control agents to monitor one another's status." Col. 3, lines 11 – 13. The present specification clearly recites that "(t)erminal nodes representative of the multiple computers are attached to the communication graph." Page 5, lines 13 – 14. Accordingly, while the terminal nodes may include a control agent, a control agent is not necessarily a terminal node and vice versa. Thus, Ibe et al. does not teach or suggest step c.

Further, regarding the Examiner's assertion that Ibe et al. teaches step d; moving a node from one cluster to another to minimize cluster weight variation as taught in Ibe et al. is quite different than reducing terminal edge weights by a delta, i.e., "the minimum weight of every terminal edge for said identified node" as recited in claim 1 and similarly recitated in claims 8 and 13. So, determining if "'a **cluster's weight** is larger than the maximum allowed weight [W>L+t], **a neighboring cluster** having the smallest weight without a weak link interconnecting them **is found**. A **node** which is adjacent to the smaller cluster **is moved** to the smaller weight cluster" (*supra*, emphasis added), is quite different from step (d) of claim 1 and as similarly recitated in claims 8 and 13. Accordingly, Ibe et al. fails to teach or suggest either step (c) or step (d).

Furthermore, obviousness is based on a legal standard, not what one may feel with respect to the particular invention. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). An obviousness rejection cannot be based the combination of bits and pieces of various references in the light of Applicants' teachings. An extensive discussion of the criteria to be applied in obviousness rulings is set forth in *Aqua-Aerobic Systems Inc. v. Richards of Rockford Inc.*, 1 U.S.P.Q. 2d 1945, 1955-57 (N.D. Ill. 1986). "The fact that a prior art reference can be modified to show the patented invention does not make the modification obvious unless the prior art reference **suggests the desirability** of the modification. An attempted modification of a prior art reference that is unwarranted by the disclosure of that reference is improper." *In re Gordon*, 733 F.2d 900, 902, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984) (emphasis added). *See also, In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 916 F.2d at 682, 16 USPQ2d at 1432.).

In *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 15__, 37 USPQ2d 1626, 16__ (Fed. Cir. 1996), hereinafter *Pro-Mold*, the Federal Circuit provided that in determining obviousness, the starting point is "the self-evident proposition that mankind, in particular, inventors, strive to improve that which already exists." *Pro-Mold* is especially helpful in understanding how the motivation can arise from the problem under 35 U.S.C. §103(a), which is the thrust of the Examiner finding the present invention *prima facie* obvious. In finding the motivation to combine to arise from the problem in *Pro-Mold*, the Federal Circuit found that the two cited references fit as hand in glove, i.e.,

> the reason to combine arose from the very nature of the subject matter involved, the size of the card intended to be enclosed. There was surely a reason to combine a reference describing an elegant card holder and cover arrangement with a reference describing a card holder no larger than necessary to enclose the card. The suggestion or motivation to combine these features of the prior art was thus evident from the very size of the card itself. Card holders larger than the card had already been designed, as evidenced at least by the Squeeze Tite card holder. On the other hand, a card holder no larger than necessary clearly was desirable in order to enable the card holders to fit in a set box. It would also avoid having the cards bang around in a holder larger than needed. Accordingly, the size of the card provided the motivation to combine the features of the prior art card holders and hence modify the size of the Squeeze Tite card holder so that it was not larger or smaller than the card, but rather substantially the size of the card. *Id.*

So, for example and to summarize, given a glove and a human body, the only use for the glove that would make sense is on a hand. This argument hardly fits the allegedly obvious combination of the previously described Hunt et al. ADPS that uses a "minimum cut contains edges with the smallest weights" representing "the line of minimum communication between the client and server" (*Supra*) with Ibe et al. "assigning a weight to each node in the graph, and... balancing partitions as a function of the weight of each node in a respective partition." *Supra.* Accordingly, it is apparent that the present application is being used in hindsight to teach the combination, as well as for the motivation and suggestion to combine. As set forth hereinabove, such a use of the application is improper.

Therefore, because Ibe et al. anchor nodes are quite different from terminal nodes in both form and function; because moving a node from one cluster to another to minimize cluster weight variation is quite different than reducing terminal edge weights by a delta; because Hunt et al. in combination with Ibe et al. does not result in the present invention as recited in any of claims 1 – 18; because the references fail to suggest combining or to provide a motivation to combine; and because such a combination requires resorting to improper hindsight for a teaching, motivation and/or suggestion to combine, the present invention as claimed in claims 1 – 18 is not made obvious by Hunt et al. and Ibe et al., either alone or in combination with each other or with any other

reference of record. Therefore, reconsideration and withdrawal of the rejection of claims 1 – 18 over Hunt et al. in view of Ibe et al. under 35 U.S.C. §103(a) is respectfully solicited.

The applicants have considered the other references cited but not relied upon in the rejection and find them to be no more relevant than the references upon which this rejection is based.

The applicants thank the Examiner for efforts, both past and present, in examining the application. Believing the application to be in condition for allowance, both for the amendment to the claims and for the reasons set forth above, the applicants respectfully request that the Examiner reconsider and withdraw the objection to claims 5, 7, 10 and 12 and the rejection of claims 1 – 18 under 35 U.S.C. §§103(a) and 112 and allow the application to issue.

Should the Examiner believe anything further may be required, the Examiner is requested to contact the undersigned attorney at the local telephone number listed below for a telephonic or personal interview to discuss any other changes. Please charge any deficiencies in fees and credit any overpayment of fees to IBM Corporation Deposit Account No. 50-0510 and advise us accordingly.

Respectfully Submitted,

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(Date)

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